

**MANUFACTURING METRICS  
REVIEW**

Annex B: How is the  
manufacturing industry currently  
classified?

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# Annex B - How is the manufacturing industry currently classified?

## 1 Industrial classification

### International industrial classification approach

In official statistics the definition of the manufacturing industry is driven by the industrial classification system. All National Statistics Institutes within the European Union are bound by legislation to classify economic activity according to the 'Statistical Classification of Economic Activities in the European Community' (NACE), a 4-digit hierarchical coding system designed to provide a framework for the collection, tabulation, presentation and analysis of data, and its use promotes uniformity. Each element of the 4-digit classification is mutually exclusive and can be aggregated to the higher levels. The UK Standard Industrial Classification of economic activities (UK SIC), down to the 4-digit 'class' level is identical to NACE; however in some instances, further granulation of specific classes has taken place, to create national 5 digit subclasses.

The NACE regulation provides a common structure as well as agreed methodological rules for classifying economic activity. The section and 2-digit level of NACE, are identical to those of the UN system: the International Standard Industrial Classification (ISIC). Uniformity at the highest level of the classifications provides UK SIC with an internationally shared structure and methodology, ensuring meaningful international comparisons. The current versions of these three allied classifications are: ISIC Rev. 4, NACE Rev. 2 and UK SIC (2007).

### The structure of UK SIC (2007)

UK SIC (2007) is divided into 21 sections (denoted by a letter A-U), which divide the economy into its component parts. The 5-digit UK SIC codes are created by disaggregating the sections into 88 divisions (2-digit level), 272 groups (3-digit level), 615 classes (4-digit level) and, in some but not all cases, again into 5-digit subclasses (191). Each element of the classification is mutually exclusive and can be combined to aggregate to the higher level.

UK SIC (2007), in accordance with ISIC Rev. 4 and NACE Rev.2 denotes 'Manufacture' in section C in UK SIC (2007) and defines it as the physical and/or chemical transformation of materials, substances or components into new products. The material, substances or components are raw materials which are products of agriculture, forestry,

fishing or mining as well as products and semi-finished products of other manufacturing activities.

Manufacture does not include the usual operations (or manipulations) associated with trade, for example sorting, grading and minor assembling of goods, these activities are included within 'Wholesale' (section G).

Section C 'Manufacturing' comprises of 24 divisions, numbered 10 to 33 as shown in figure 1. UK SIC (2007) does not make a distinction between remanufactured products and those manufactured from raw materials; if end of life commercial and industrial machinery and equipment were restored to the original specifications or better, then they would be classified within divisions 25 - 30 accordingly, for example, the remanufacture of electric motors is included within 27110 'Manufacture of electric motors, generators and transformers'.

Any other specialist restoration and repair which does not take a product back to the original specification or better, would be classified as follows:

- commercial and industrial machinery and equipment – Section C division 33 'Repair and installation of commercial and industrial machinery and equipment'
- motor vehicles – section G, division 45 'Wholesale and retail trade; repair of motor vehicles and motor cycles'.
- computers, personal and household goods – Section S 'Other service activities'.

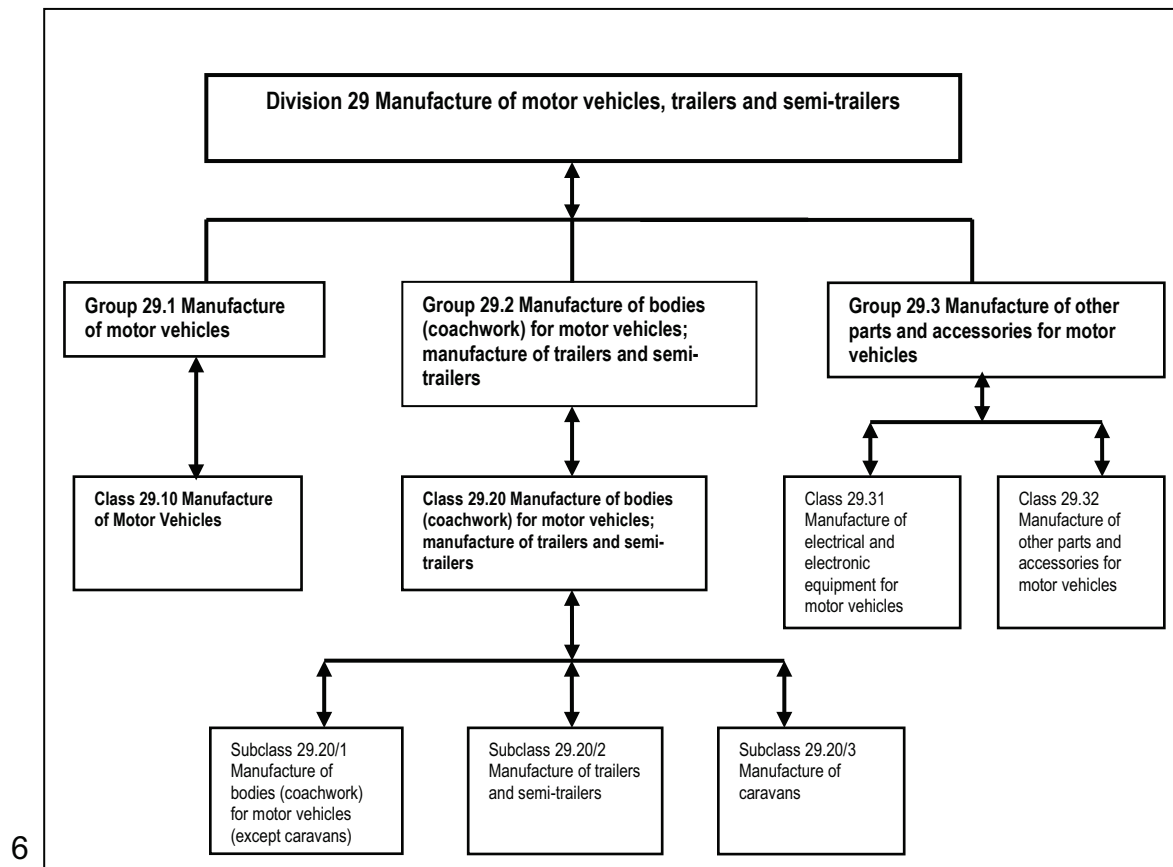
The only exception to this is the repair and installation of commercial and industrial machinery and equipment which is classified to division 33. The main reason for this is that the repair and maintenance is usually done by the manufacturer. For detailed UK SIC (2007) classification descriptions please refer to the [ONS Classifications webpage](#).

**Figure 1: The high level structure of Manufacturing within UK SIC (2007)**

SECTION	Division
C	MANUFACTURING
	10 Manufacture of food products
	11 Manufacture of beverages
	12 Manufacture of tobacco products
	13 Manufacture of textiles
	14 Manufacture of wearing apparel
	15 Manufacture of leather and related products
	16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
	17 Manufacture of paper and paper products
	18 Printing and reproduction of recorded media
	19 Manufacture of coke and refined petroleum products
	20 Manufacture of chemicals and chemical products
	21 Manufacture of basic pharmaceutical products and pharmaceutical preparations
	22 Manufacture of rubber and plastic products
	23 Manufacture of other non-metallic mineral products
	24 Manufacture of basic metals
	25 Manufacture of fabricated metal products, except machinery and equipment
	26 Manufacture of computer, electronic and optical products
	27 Manufacture of electrical equipment
	28 Manufacture of machinery and equipment n.e.c.
	29 Manufacture of motor vehicles, trailers and semi-trailers
	30 Manufacture of other transport equipment
	31 Manufacture of furniture
	32 Other manufacturing
	33 Repair and installation of machinery and equipment

Underneath the divisions the classification is split into groups, classes and sub-classes. To illustrate how this works an example of the hierarchy for division 29 within Manufacturing can be seen in figure 2.

**Figure 2: The high level structure of Manufacturing within UK SIC (2007)**



## The UK SIC Revision Process

To ensure the classification is up to date and fit for purpose, NACE and by association UK SIC, is subject to periodic revision. The NACE revision process can take a major or minor form; a major revision will result in a complete review of the system, requiring the introduction of a new European NACE legislation. A minor revision will allow for limited change to the classification and may result in some amendment to an existing 'NACE' legislation.<sup>1</sup>

Throughout the revision process the role of the ONS is to ensure impartiality and industry expertise; historically this has been achieved by establishing a network of coordinators, comprised mainly of statisticians from various Government Departments. Each coordinator holds responsibility for collecting and evaluating proposals for change to a specific area of the UKSIC. Any proposed changes must meet the stringent methodology or criteria associated with the classification; comments, proposals and conflicting views received from the coordinators are reconciled by ONS, allowing for a consolidated UK contribution to Eurostat.<sup>2 3</sup>

### Revision timing

The duration of each revision process varies in accordance with the scope of the update. The current revision of the classification is NACE Rev. 2, with UK SIC (2007) being the national version. UK SIC (2007) is the result of an approximately 5 year revision process, as measured from initial consultation to the published system. The previous version of the classification, UK SIC 2003 (NACE Rev1.1) is the outcome of an approximately 2 year minor revision process.

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<sup>1</sup> The UK SIC revision process has three distinct stages:

- i. UN consultation on the revision of ISIC: to allow for a common EU response, Eurostat facilitates the distribution and collection of UN questionnaires to member states. The agreed methodological rules and high level structure of ISIC, will then form the sections and the first two digits (divisional level) of NACE.
- ii. EU consultation on the group and class level of NACE: Eurostat request proposals from member states for the disaggregation of the two digit divisional level; the aim is to create 3-digit (group) and 4-digit (class) levels that achieve a classification more suited to the European economy.
- iii. UK SIC subclass exercise: The UK hold a consultation exercise requesting proposals for the disaggregation of individual 4-digit classes into 5-digit subclasses (subclass is the only level where there is national flexibility). The timing of this exercise is crucial, UK SIC as the national version, must be ratified by Eurostat and introduced at the same time as NACE.

<sup>2</sup> Each stage of the revision is published on the ONS website as are newsletters, coordinator contact details and revision proposals. Articles in academic journals and UK representation on the Eurostat Classifications Working Group are also provided by ONS.

<sup>3</sup> At the outset of the revision process a Steering Group is formed, chaired by a Head of Profession from a Government Department other than ONS. Responsibilities of the Steering Group include overseeing the overall process within the UK, managing the broader issues arising from the revision and the ratification of subclass proposals to ensure that they meet UK needs. The Steering Group usually includes members from ONS, other government departments, the Bank of England and devolved administrations.

In May 2015, the UN Expert Group on International Statistical Classifications, will consider the work undertaken on the classification of Factoryless Goods Production and determine whether there are issues requiring a revision to ISIC. Revising the current version of ISIC (ISIC Rev. 4) will launch the international process for updating UK SIC, however as ISIC Rev. 4 and therefore UKSIC (2007) are the result of a major revision, it is probable that any update will take a minor form.

## 2 Introduction to the IDBR

Introduced in 1994, the Inter-Departmental Business Register ([IDBR](#)) is a comprehensive list of UK businesses that is used by government for statistical purposes. The IDBR is the place where the industry classification for each business is stored along with other key information for businesses such as contact details and employment and turnover size. The register provides a sampling frame for the majority of surveys of businesses carried out by the ONS and by other government departments, whilst a few surveys source administrative data or use historic reference lists. It is also a key data source for analyses of business activity.

The IDBR complies with all European Union legislation relating to the structure and use of business registers.<sup>4</sup>

The IDBR consists of 2.2 million businesses in all sectors of the UK economy. It covers all businesses that are either registered for Value Added Tax (VAT) with HMRC or for Pay As You Earn (PAYE) with HMRC. It excludes some very small businesses; those that are not registered for PAYE (i.e. those with no employees), those that are not registered for VAT (i.e. if business turnover is below the tax threshold) and some non-profit making organisations.

The business units held on the IDBR can be grouped into three types which are shown in figure 3:

**i) Administrative Units** - VAT trader and PAYE employer information supplemented with incorporated business data from Companies House.

**ii) Statistical Units** - A group of legal units under common ownership is called an Enterprise Group.

An Enterprise can be defined as the smallest combination of legal units (generally based on VAT and/or PAYE records) that is an organisational unit producing goods or

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<sup>4</sup> For example, [Regulation \(EC\) No 177/2008](#) of 20 February 2008 establishing a common framework for business registers for statistical purposes and [Council Regulation \(EEC\) No 696/93](#) on statistical units for the observation and analysis of the production system in the Community



services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit.

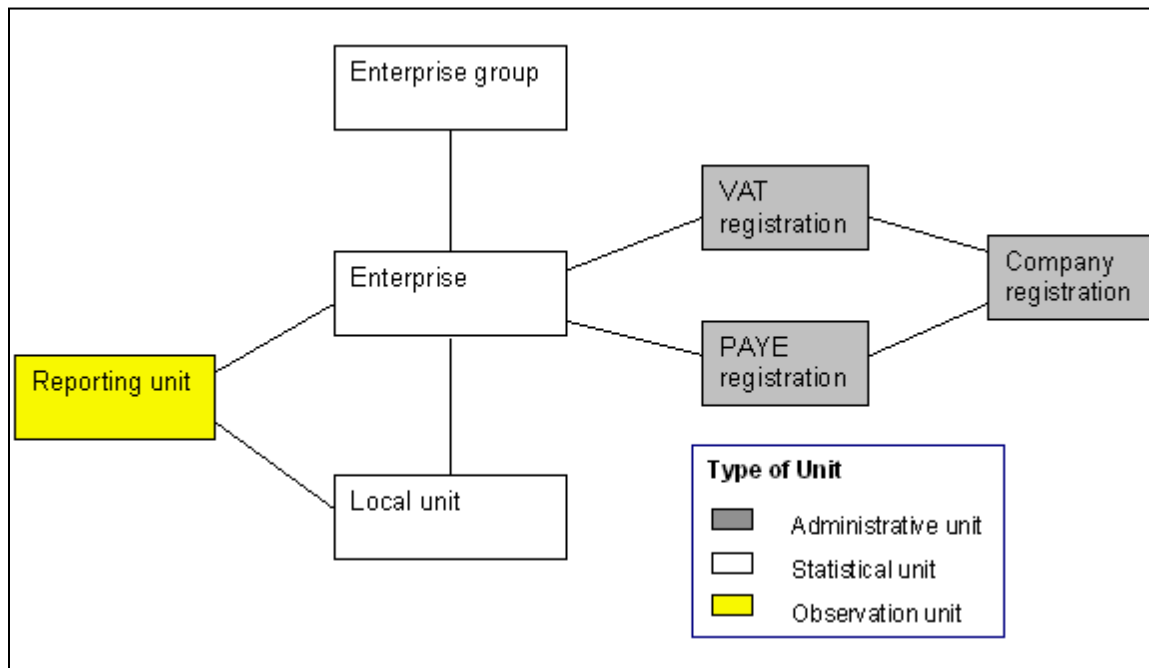
An enterprise may consist of one or more sub-units called local-units (e.g. a workshop, factory, warehouse, office, mine or depot) situated in a geographically identified place and may carry out more than one type of economic activity.

### iii) Observation Units:

Reporting Units hold the mailing address to which the survey questionnaires are sent. The questionnaire can cover the enterprise as a whole, or parts of the enterprise identified by lists of local units. Most businesses (97%), with the exception of a few larger businesses which have a more complex structure, the reporting unit is the same as the enterprise.

For some complex businesses activity it is easier for businesses to provide on an activity basis so an enterprise may be split in to a reporting unit covering local units undertaking for example, retail, while another reporting unit may cover activity in local units predominantly undertaking manufacturing (also see section 3.2.5).

**Figure 3: Types of IDBR units and how they fit together**



### 3 Classification for individual businesses

The industrial classification (the activity) of any business held on the IDBR is based upon UK SIC (2007) according to the main activity undertaken by the business. The IDBR holds classifications down to the 5-digit SIC level. Classifying the economic activity of businesses is not straightforward as business structures are often complex and businesses often undertake numerous types of activity. Further re-classification of a business can occur due to a relatively small change to the nature of its operation, and this can have a significant effect on survey estimates by industry. ONS therefore employs a range of approaches to ensure industry classifications are up to date and in line with international classification regulations.

#### Self-classification

The IDBR is populated with classification information from administrative sources supplemented with survey information collected by ONS.<sup>5</sup> Businesses self-classify themselves in the administrative sources to a UK SIC code based on the main economic activity. Self-classifying can take the form of choosing from a list of UK SIC codes, as offered by Companies House, or an interactive, online process, such as provided by HMRC. ONS does not clerically update any information received from administrative sources but supports self-coding to help ensure the best possible reclassification by providing a public line classifications helpdesk, online interactive coding facilities and dedicated classifications webpages, all of which provide free and expert advice to all users. ONS also provide classifications helpdesk contact details on the questionnaires and websites of a wide range of government entities, including Companies House and HMRC. Complex classification queries arising from automatic coding, or from survey sources, are referred to the ONS Classifications and Harmonisation Unit.

The allocation of a classification to a business will be based on its reporting structure. Where an enterprise has no local units, the classification will initially be provided by an administrative source i.e. VAT, PAYE or Companies House.

#### Survey classification

All businesses with more than one local unit will have been included in the Business Register Employment Survey (BRES) at some stage as there is currently no administrative source that provides this level of information. BRES is an annual survey that collects detailed employment information about local units. This information is used

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<sup>5</sup> The administrative sources are: HMRC Pay As You Earn, HMRC Value Added Tax, Companies House information, with the main ONS survey used for classification is the Business Register Employment Survey.

to update the IDBR as well as providing a rich source of employment data in its own right.

BRES covers all businesses with more than 100 full-time equivalent (FTE) employment or that have more than 20 FTE employment and operate in more than one region or industry. It also includes a sample of the remaining businesses. Among other things BRES asks businesses to report the main activity of each site and the number of employees.

A set of priority rules are used to determine the classification of a business where there is more than one data source providing information on industrial classification. In summary the priority is: ONS Surveys; VAT; Companies House; PAYE.

To ensure comparability, quality and uniformity, the correct application of UK SIC methodology is of primary importance. ONS does not take the legal name or trading style of a business into consideration when coding. For businesses in BRES, UK SIC coding decisions are made based on the text description of activity for each site provided by the contributor.<sup>6</sup> Automatic coding takes place, however it is subject to stringent quality control, with descriptions that fail to reach the quality levels being referred for manual coding.<sup>7</sup> Some large or particularly complex businesses undergo profiling by ONS Business Register Experts, referring classification issues to experts when necessary. Validation is also undertaken for large businesses that report substantial changes in activity, and therefore SIC classification, to ensure they are true changes (see 'Profiling' section).

Where an enterprise has one or more local unit each local unit is assigned a UK SIC code based on the main activity at that unit reported by the business. The classification of the enterprise will be calculated from the dominant activity of the attached local units, using a top down methodology. In order to determine the principal activity of a unit, the activities carried out by the unit and the corresponding share of value added has to be known. As it is not always possible to obtain the information on value added, in accordance with Eurostat guidance, IDBR use employment as a substitute criteria.<sup>8</sup> The number of employees is used as a proxy measure for the volume of activity being undertaken at that site i.e. the activity carried out by the greater number of employees.

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<sup>6</sup> The majority of small business are not included in BRES and so their industry is taken from the administrative sources.

<sup>7</sup> There are 5 stages of manual coding to ensure quality (coding is based strictly on the main economic activity):

1. Trained front line coders deal with straight forward classifications, referring complex queries to a dedicated classifications helpdesk.
2. Highly trained classifications helpdesk staff deal with more complex queries referring the case to the UK expert when necessary.
3. Occasionally, the UK expert may refer an economic activity to Eurostat the Statistical Office of the EU and custodians of NACE.
4. If the classification is decided at EU level, then this will be deemed caselaw and adopted by all member states.
5. Recourse to the UN can be made by Eurostat classification experts, in certain instances.

<sup>8</sup> *Statistical Classification of Economic Activities in the European Community (NACE)*, Statistical Office of the European Community. (2008). p. 15-16. <http://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

There are detailed rules for determining SIC for enterprises with multiple local units (see section 3.4 for examples).

## Profiling

The ONS also has a Business Profiling Team which is responsible for capturing the correct structure and industry classification of the largest and most complex enterprises in the UK. It profiles around 180 Enterprise Groups each year to understand their current reporting structure and industry classification of the enterprise as a whole and their local units as well as their employment and turnover.

The profiling process involves studying the company accounts but also meeting with the Group Accountant for a face to face discussion. The team ensures that this information is correctly captured on the IDBR.

The criteria used for prioritising the cases to profile are:

- live Truncated Enterprise Groups (TEGs) with employment of 250+ and where there is secondary activity (NACE) of 125+ employment<sup>9</sup>
- live TEGs with 2,000+ employment with no secondary activity or secondary activity (NACE) of <250 employment
- central government with >5,000 employment (2 cases per month)
- local authorities with >3,000 employment (4 cases per month)

The criteria used to prioritise cases are:

1. Requests by the business survey teams<sup>10</sup>
2. Those with an employment difference of greater than 10% between PAYE data (HMRC data) and employment returned by the BRES that have not been profiled in the last 4 years.
3. Those with an employment difference of greater than 10% between PAYE data and returned employment by BRES that have been profiled in the last 4 years.
4. Those where the employment difference between PAYE and BRES is less than 10% that have not been profiled in the last 4 years.
5. Those where the employment difference between PAYE and BRES is less than 10% that have been profiled in the last 4 years.

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<sup>9</sup> The part of a multinational enterprise group, which comprises only the legal units resident in the same country, is called truncated enterprise group.

<sup>10</sup> For example, a large business classified to Manufacturing which reports zero or very small levels of stocks in response to an ONS survey may be passed to the profiling team for investigation or there may be large fluctuations in the data reported by a business.

The profiling team often come across issues around classifications with complex enterprises. In some cases the business will see their activity to be different to the way the regulations indicate it should be classified but these do not always follow the same pattern. For example, there are cases where an enterprise was classified, according to the rules, to manufacturing as there were several sites in the UK with a large amount of employees involved in manufacturing activities, however, the enterprise felt they were wholesalers as they did not own the raw materials and produced goods. On the other hand there are cases where an enterprise would be classified, according to the rules, to 'distribution' where the business would see themselves as manufacturers.

The profiling team always base classification decisions around regulation and international classification rules and resolve any issues by direct communication with the business, detail study of their annual accounts and discussions with ONS classification experts.

While profiling is the most effective way to understand business activity and classification it is resource intensive. It is therefore not possible to profile all large and complex businesses on a regular basis with only a small proportion of businesses being eligible for profiling each year. While there is a clear process for identifying and prioritising the businesses to be profiled, despite these efforts, there may be a minority of cases where a business is consistently incorrectly classified, which may never be prioritised or highlighted.

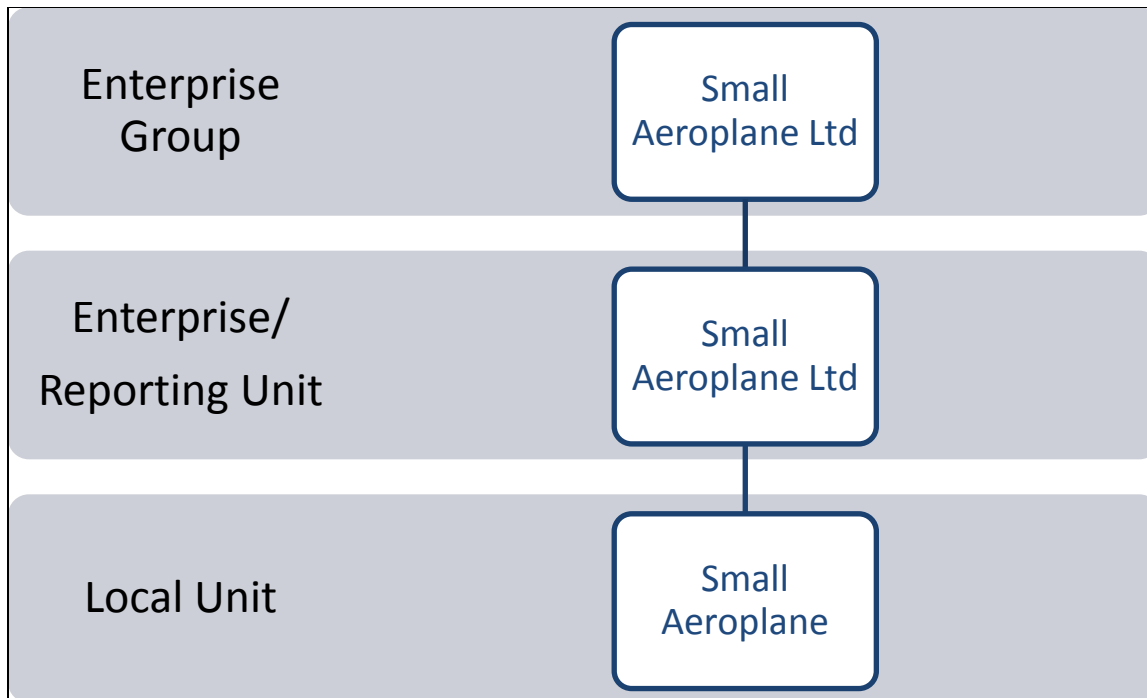
## **4 Classification examples**

Any classification examples provided in this report are simplified and purely hypothetical to illustrate what 'manufacturing activity' actually covers in official statistics and also some of the complexities faced with industrial classification.

### **Single site business**

The majority, 97% of businesses, on the register are single site businesses; that is the local unit, reporting unit, enterprise and enterprise group are synonymous (see figure 4). While these are the majority of businesses they account for a smaller proportion of UK enterprise turnover (around 45%). These businesses will have a single industrial classification based on the self-reported main activity undertaken at that site. All employment and activity within that enterprise would be allocated to that one activity classification in the majority of official statistics (see case studies 1 and 2).

### **Figure 4: Example of a simple business structure**



### Case study 1

An enterprise has one site which has the following numbers of employees undertaking each activity:

100 employees manufacturing computers by assembling components

30 employees undertaking engineering Research & Development (R&D)

20 employees serving lunch

10 employees undertaking delivery services

#### **Classification:**

The enterprise, and all its activity and employment, would be classified to the self-reported main activity taking place at the site. In this case it is likely this would be the manufacture of computers. As such the 160 employees at this enterprise would be classified to:

#### **Section C: Manufacturing**

**Division 26:** Manufacture of computer, electronic and optical products

## **Group 26.2: Manufacture of computers and peripheral equipment**

### **Case study 2**

There are two enterprises – enterprise A and enterprise B, both of which have one site with the following numbers of employees undertaking each activity:

Enterprise A:

100 employees manufacturing computers from components

Enterprise B:

30 employees undertaking engineering R&D

20 employees serving lunch

10 employees who are drivers

#### **Classification:**

The enterprises, and all their activity and employment, would be classified to the self-reported main activity taking place at the sites.

In this case it is likely that for enterprise A this would be the manufacture of computers. As such the 100 employees at this enterprise would be classified to:

**Section C:** Manufacturing

**Division 26:** Manufacture of computer, electronic and optical products

**Group 26.2:** Manufacture of computers and peripheral equipment

For enterprise B it is likely that the main activity would be considered to be R&D. As such the 60 employees at this enterprise would be classified to services:

**Section M:** Professional, Scientific and Technical Activities

**Division 72:** Scientific research and development

**Group 72.1:** Research & experimental development on natural sciences & engineering

**Class 72.19:** Other research & experimental development on natural sciences & engineering

While in the majority of cases it is likely that enterprises will report the main activity as that in which the majority of employees work, there may be occasions where manufacturing is very capital intensive that there may be very few employees undertaking manufacturing at a site but that is seen as the main activity. So adapting case study one, 10 employees may manufacture computers from raw materials with the same number of employees working on other activities. In this instance the business may self-report activity as computer manufacturing so the 70 employees would be classified to manufacturing. However, it may be more likely that the business will self-report the main activity as R&D so all employees would be classified to R&D.

### Contractors

Some enterprises do not employ all workers directly but use agency staff. The inclusion or exclusion of agency workers depends on how they are paid. Based on the rules and definition the business should report only the employees on their payroll. All agency workers paid directly from the businesses payroll should be included, whereas all agency workers paid directly from the agencies payroll would be excluded (see Case study 3).

The main activity of the site should then be classified based on the main activity of the staff on the payroll. However, the main activity information is self-completed and open to the interpretation by the individual completing the form, who might be somewhat removed from the activity of those on the payroll and agency workers.

### Case study 3

An enterprise has one site which has the following numbers of workers undertaking each activity:

100 employees manufacturing computers from components

40 agency workers **paid directly from the business's payroll** undertaking engineering R&D

20 agency workers paid directly from the agency payroll serving lunch



10 agency workers paid directly from the agency payroll undertaking delivery services

**Classification:**

The enterprise, and all its activity and employment, would be classified to the self-reported main activity taking place at the site. In this case it is likely this would be the manufacture of computers. However, only the **140 workers paid directly from the business payroll** would be reported for this business and classified to:

**Section C:** Manufacturing

**Division 26:** Manufacture of computer, electronic and optical products

**Group 26.2:** Manufacture of computers and peripheral equipment

The remaining 30 agency workers that are **not paid directly** from the businesses payroll would not be reported by the enterprise. Instead these workers should be reported by the agency and classified under (services):

**Section N:** Administrative and support service activities

**Division 78:** Employment activities

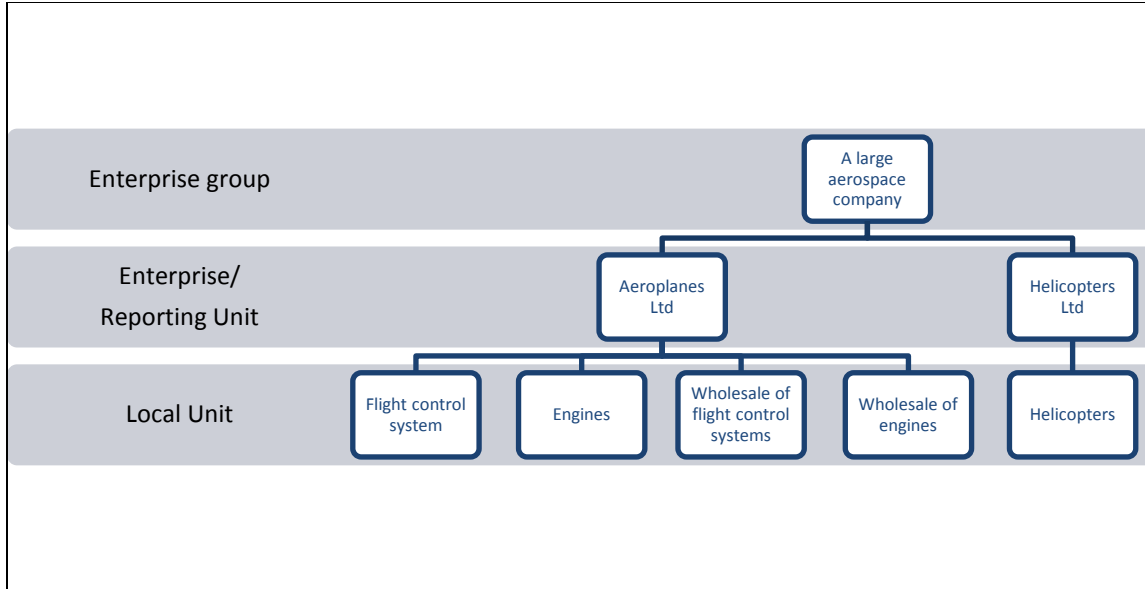
**Group 78.1:** Activities of employment placement agencies

**Class 78.10:** Activities of employment placement agencies

**Multi-site businesses**

Around 60,000 enterprises have more complex structures but these enterprises account for a significant share of UK enterprise turnover (around 55%). An example of a business with a more complex structure can be found in figure 5.

**Figure 5: Example of a complex business structure**



The process for assigning an industry classification to an enterprise in these cases is more complex. Local units are classified to an industry as in the single site examples using self-reported activity at each site from BRES. The dominant activity of the enterprise is then driven by the activities of local unit employees. In principle, classifications reflect the activity with the most number of employees. However, the classification of the enterprise and its dominant activity, follows a ‘top-down’ approach, in line with the hierarchical principles of UK SIC, in firstly considering the section level and the progresses through each level of the classification until a clear classification is determined. Some examples of the approach can be seen in Case studies 4 and 5.

#### Case study 4

Aeroplanes Ltd has four local units with the following numbers of employees (the local units have been classified as for single site businesses):

Enterprise	LU Reference	LU SIC	LU title	LU employees
Aeroplanes Ltd	Flight control system	26.51/1	Manufacture of electronic instruments and appliances for measuring, testing, and navigation, except industrial process control equipment	200

Enterprise	LU Reference	LU SIC	LU title	LU employees
	Engines	28.11	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	300
	Wholesale of flight control systems	46.52	Wholesale of electronic and telecommunications equipment and parts	100
	Wholesale of engines	46.69	Wholesale of other machinery and equipment	80

**Classification:**

At the section level of SIC, the largest number of employees (300) are working in section C 'Manufacturing'; within section C, the largest employment at the 2-digit 'divisional' level is the site manufacturing engines. As such at the enterprise level, the enterprise, and the 680 employees, would be classified to:

**Section C:** Manufacturing

**Division 28:** Manufacture of machinery and equipment n.e.c.

**Group 28.1:** Manufacture of general-purpose machinery

**Class 28.11:** Manufacture of engines & turbines, except aircraft, vehicle & cycle engines

**Case study 5**

Following on from Case study 4, imagine that improvements in technology meant that Aeroplanes Ltd was able to reduce the number of employees

working to manufacture products. As a result the number of employees at the four local units may now be:

Enterprise	LU Reference	LU SIC	LU title	LU employees
Aeroplanes Ltd	Flight control system	26.51/1	Manufacture of electronic instruments and appliances for measuring, testing, and navigation, except industrial process control equipment	20
	Engines	28.11	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines	150
	Wholesale of flight control systems	46.52	Wholesale of electronic and telecommunications equipment and parts	100
	Wholesale of engines	46.69	Wholesale of other machinery and equipment	80

**Classification:**

Following the 'top-down' approach which first considers the section level of UK SIC, the largest number of employees (180) are working within sites that are classified to the 'Wholesale' element of section G. Despite the manufacture of 'Engines' being the site with the highest number of employees (150), at the section level the greater overall employment is in 'Wholesale' and this is the deciding factor .

Within 'Wholesale' a higher number of employees work in 'Wholesale of electronic and telecommunications equipment and parts' (46.52) than in 'Wholesale of other machinery and equipment' (46.69). As such at the enterprise level, the enterprise, and the 430 employees, would be classified to:

**Section G:** Wholesale and retail trade; repair of motor vehicles and motorcycles

**Division 46:** Wholesale trade, except of motor vehicles and motorcycles

**Group 46.5:** Wholesale of information and communication equipment

**Class 46.52:** Wholesale of electronic & telecommunications equipment & parts

## Outsourcing/ Factoryless production

As business models have changed and become more global it has become more common for businesses to outsource parts of their activity. In 2007, the UN Expert Group on International Economic and Social Classifications, agreed that for the ISIC Rev. 4, units which completely outsource the transformation process should be classified in manufacturing 'only if they own the raw material used as input to the production process'. Eurostat adopted the ISIC Rev. 4 rules, for NACE Rev 2 and by association UK SIC (2007) published in 2008.<sup>11</sup> These rules were reviewed in 2013, although the review did not include modifying or adding to the existing rules but focussed on providing guidance on classification issues raised by Member States and making the rules and guidelines clearer and more operational.

The terminology surrounding outsourcing activity can be ambiguous, for example, the exact meaning of 'factoryless' or 'toll' manufacturing can be open to different interpretations. Within UK SIC (NACE), if a principle contracts out the whole manufacturing process, this activity is defined as 'outsourcing' and specific rules apply:

1. A principal who **owns the main material inputs** and thereby owns the final outputs, has the complete production process carried out by a contractor.

The principal is classified within Manufacturing; more specifically to the class that corresponds to the complete production process.

The contractor is classified with units producing the same goods for their own

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<sup>11</sup> The UK were members of the original Task Force that looked at the classification of outsourcing.

account. As a consequence, the contractor is classified in the same class as the principal.

2. A principal which **doesn't own the main material inputs**, has the complete production process carried out by a contractor.

The principal is classified within 'Wholesale'.

The contractor is classified within manufacturing, along with units producing the same goods for their own account.

These rules are also valid if the contractor is a subsidiary unit and whether or not the tasks are carried out on market conditions.

The principal and the contractor may be located within the same economic territory or in different economic territories - the physical location does not affect the classification.

If the principle (or the contractor) carries out other activities, classification should be made in line with the main economic activity.

The method of purchasing the raw materials is not taken into account when classifying the activity; for example:

1. if the principle owns the raw materials, they can be considered a physical asset of the principles business.
2. If the contractor owns the raw materials, they can be considered a physical asset of the contractors business.

## Case Study 6

Tubes UK, an enterprise located in the UK, arrange for the manufacture of cast iron tubes, to take place in China:

Iron CC, an enterprise located in China, arrange for the purchase of the main raw materials on behalf of Tubes UK.

The cost of the main raw materials are invoiced to and paid for, by Tubes UK and therefore become assets of the company.

Iron CC, then carries out the manufacturing process on behalf of Tubes UK, on a fee or contract basis.

The final product is owned by Tubes UK.

**Classification:**

Given that Tubes UK own the raw materials, the economic activity of Tubes UK would be classified within:

**Section C:** Manufacturing

**Division 24:** Manufacture of basic metals

**Group 24.5:** Casting of metals

**Class 24.51:** Casting of iron

As Iron CC is a Chinese enterprise it would not be classified according to the UK SIC or appear on the IDBR. However, if the enterprise was to be classified to the UK SIC, and when the enterprise is classified in China, the economic activity would also be included within section C 'Manufacturing', class 24.51 'Casting of iron' and classified in exactly the same manner as if the manufacturing took place on their own account.

**Case study 7**

Tubes UK, a company located in the UK, arrange for the manufacture of cast iron tubes, to take place in China:

Tubes UK pay a deposit to Iron CC, a company located in China, for the manufacturing service.

Iron CC use the deposit to purchase the main raw materials on its own account and then carry out the manufacturing process, on a fee or contract basis.

Tubes UK make the final payment for the manufacturing process and own the end product.

**Classification:**

Given that Tubes UK do not own the main raw materials, the economic activity of Tubes UK would be classified within:

**Section G:** Wholesaling

As Iron CC is a Chinese enterprise it would not be classified according to the UK SIC or appear on the IDBR. However, if the enterprise was to be classified to the UK SIC, and when the enterprise is classified in China, the economic activity would be included within section C 'Manufacturing', class 24.51 'Casting of iron' and classified in exactly the same manner as if the manufacturing took place on their own account.

In practice correctly classifying businesses that outsource according to these rules is very challenging. ONS take a proactive approach to the classification of this activity and adheres to the rules set by Eurostat. ONS Classifications Helpdesk staff are fully conversant with the European rules on outsourcing and provide businesses and ONS staff with expert assistance in classifying complex business activity. The consideration that outsourcing may take place, forms part of the routine investigation of any referred query. The profiling team also consider and follow these rules when reviewing business structure and classification. As with any complex coding issue, ONS would raise any complicated outsourcing issues on the online forum, dedicated to classification issues and maintained by Eurostat.

Eurostat have acknowledged that no matter how detailed the outsourcing rules they will not accommodate all cases and have advised that cases with extremely complicated classification issues should be treated with 'common sense' and solutions should be developed based on experience and the basic classification rules as far as they apply.

Despite the efforts made, ONS is aware that it may not always be possible to identify outsourcing activity and therefore ensure the industry classification is correct in all cases. For example, if a business does not follow the classification rules or seek advice when self-classifying and it is not highlighted to the profiling team in line with their identification criteria it would retain the industry classification provided from the administrative source or from BRES.

In May 2015 the United Nations Expert Group on Classifications will consider the treatment of 'factoryless goods producers' and other outsourcing issues within ISIC Rev.4. Eurostat are awaiting the outcome of the meeting, to assess the implications for the current rules set for NACE Rev. 2 and consequentially the UK national version: UK SIC 2007. ONS continues to monitor the United Nations progress in dealing with this matter.

## **5 Enterprise, Reporting units and local unit statistics**

The statistical units definitions are open to interpretation, which can lead to different levels of collection. The difference between enterprise and RU reporting is important.



Where a business has been broken down into smaller discrete parts for collection, better industrial granularity is available. However, in other cases multiple activity could occur in an enterprise. In practice a lot depends on the VAT reporting arrangements, since it is VAT group reporting that is in practice used to determine autonomy in the UK. Also the profiling method enables business to report in the most optimum way – given the aim to ease reporting burden on business. So considering the structure of the business in figure 5, if there was a significant degree of autonomy, there would actually be two separate enterprises: one covering the manufacturing local units and one covering the wholesale local units. The enterprise classification would be then be undertaken independently for each enterprise.

In other cases enterprises that undertake multiple activities at different sites but that don't have a significant degree of autonomy, may find it difficult to report their activity in a combined way. As such there is an additional sub-enterprise classification, the reporting unit which can cover groups of local units. So for the business in figure 5 if the local units covering wholesale and manufacturing don't have a significant degree of autonomy, it may be two separate reporting units on the IDBR which would have their own industry classification. Such reporting preferences are often established during the profiling of large and complex businesses.

Considering Case studies four and five, if two separate enterprises or reporting units were established to cover the manufacturing and wholesale activity 500 and 250 employees would be classified to manufacturing respectively and 180 to wholesale.

The use of IDBR classification in publications has to be considered carefully depending on the level of information required. The majority of official business surveys sample and collect information at the reporting unit level. Official statistics are generally produced on an enterprise or reporting unit basis where all of the variables being measured would be classified according to the industry of the enterprise/ reporting units (as is the case for the National Accounts).

However, some official statistics also provide local unit estimates, where all of the variables being measured is allocated to the industry of the local unit. This local unit approach provides greater clarity as to the actual activity taking place as the industry classification of the local unit can differ from that of the wider enterprise. This approach is also useful for sub-national estimates as there is more detail as to where the different types of activity are taking place. The industry distribution by local unit will therefore differ from that of the distribution for enterprises. However, collecting certain types of information about local units, such as turnover, can be difficult as it cannot always be allocated across sites. The local unit information is used for compiling the regional accounts.

Table 1 shows the distribution of enterprises on the IDBR by broad industry group. The table shows the number of enterprises and within this the numbers of single and multi-site units and the number, and range of activity, of 'diverse multi-site' units (where local

units within the enterprise undertake a mix of activity across the broad industry classifications). The majority of enterprises are single site or specialised multi-site businesses. However, diversified manufacturing businesses have almost as many service local units as manufacturing ones, whereas diversified service businesses have a very small proportion of manufacturing local units.

While looking at the number of enterprises/ reporting units is interesting, businesses differ in size and so it is also interesting to consider value added. Table 2 shows the value and distribution of [approximate Gross Value Added](#) from the [ONS Annual Business Survey](#) by reporting unit and local unit.<sup>12</sup> The table shows that while the distribution of aGVA by industry differs when across reporting units and local units, differences between the two are relatively small. For example, if national reporting unit level data was considered Manufacturing would be estimated to account for 15.8% of aGVA, while if local unit classification was considered Manufacturing would be estimated to account for 15.5% of aGVA.

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<sup>12</sup> The Annual Business Survey collects data from reporting units and then apportions this data to local units based on a complex apportionment approach. More details on the Annual Business Survey and the regional apportionment approach can be found in the [ABS Technical Report](#).

**Table 1: Number of enterprises on the IDBR by broad industry, 2014<sup>13</sup>**

	# Enterprises	Of all enterprises		Of all multi-site enterprises		# local units for all diversified multi-site enterprises			
		# Single site enterprises	# Multi site enterprises	# Specialised multi-site enterprises	# Diversified multi-site enterprises	Manufacturing	Other	Services	LU total
Manufacturing	126,355	120,950	5,405	2,980	2,420	6,335	1,030	5,755	13,120
Other	422,615	417,725	4,890	3,795	1,095	435	8,195	2,195	10,825
Services	1,714,670	1,666,715	47,955	45,330	2,625	2,120	3,150	93,880	99,150
total	2,263,640	2,205,395	58,245	52,105	6,140	8,890	12,375	101,830	123,095

Source: IDBR March 2014

<sup>13</sup> Informed by the work in: Ritchie, F., Thomas, A. and Welpton, R. (2012) *What is a manufacturing job?* Working Paper. University of the West of England, UK.

Notes:

- Manufacturing (SIC 2007 Section C); Other (Sections A, B, D, E, F); Services (Sections G-S).
- A specialised multi-site enterprise/ RU is one where all local units (or sites) within the enterprise/ RU are classified to the same high-level industry (Manufacturing, Other, Services) as the enterprise/ RU.
- A diversified multi-site enterprise/ RU is one where one or more local units (or sites) within the enterprise/ RU are classified to a different high-level industry (Manufacturing, Other, Services) to the enterprise/ RU.
- Local units across the industries do not sum to the number diversified enterprises/ RUs as multi-site enterprises/ RUs have multiple local units.

**Table 2: Approximate Gross Value Added (aGVA) by reporting unit and local unit industry classification, 2012**

Industry Section (SIC 2007)	aGVA allocated to reporting unit industry classification		aGVA allocated to local unit industry classification	
	£million	%	£million	%
A – Agriculture (part), forestry and fishing	1,414	0.1	1,240	0.1
B – Mining and quarrying	24,368	2.6	26,049	2.8
C – Manufacturing	148,336	15.8	145,406	15.5
D – Electricity, gas, steam and air conditioning supply	22,464	2.6	25,696	2.7
E – Water supply, sewerage, waste management & remediation activities	16,449	1.8	15,002	1.6
F – Construction	72,207	7.7	71,627	7.7
G – Wholesale and retail trade; repair of motor vehicles and motorcycles	144,077	15.4	137,152	14.7
H – Transport and storage	64,912	6.9	68,985	7.4

Industry Section (SIC 2007)	aGVA allocated to reporting unit industry classification		aGVA allocated to local unit industry classification	
	£million	%	£million	%
I – Accommodation and food service activities	37,778	4.0	36,517	3.9
J – Information and communication	93,366	10.0	96,147	10.3
L – Real estate activities	32,289	3.4	27,116	2.9
M – Professional, scientific and technical activities	119,127	12.7	133,565	14.3
N – Administrative and support service	87,073	9.3	84,051	9.0
P – Education (part)	13,674	1.5	14,112	1.5
Q – Human health and social work activities (part)	26,003	2.8	23,430	2.5
R – Arts, entertainment and recreation	16,603	1.8	15,645	1.7
S – Other service activities	14,160	1.5	13,918	1.5

Industry Section (SIC 2007)	aGVA allocated to reporting unit industry classification		aGVA allocated to local unit industry classification	
	£million	%	£million	%
Total	936,292		935,661	

Source: Annual Business Survey

Notes:

- The ABS covers only the UK Non-Financial Business Economy which accounts for approximately two thirds of the UK economy in terms of Gross Value Added. The industries covered are:
- Agriculture (support activities SIC 01.6 and hunting and trapping SIC 0.17, only), forestry and fishing - Section A
- Production industries - Sections B-E
- Construction industries - Section F
- Distribution industries - Section G
- Non-Financial Service industries - Sections H, I, J, L, M, N, P (private provision only), Q (private provision only in SIC 86.1 and 86.9), R and S.
- Small differences exist between total aGVA across reporting units and total aGVA across local units due to the methodology used for apportionment and the treatment of data on Insurance & reinsurance. More details can be found in the [2012 Regional Annual Business Survey release](#).
- The sum of constituent items in tables may not always agree exactly with the totals shown due to rounding.

## 6 Other classifications

Over 70 statistical classifications (some compiled for a limited or specific range purposes) are approved by Eurostat, for use with National Statistics Institutes.<sup>14</sup> While the majority of business statistics are produced and presented based on UK SIC, alternative classifications may be used for specific statistical purposes. One example which is useful for understanding the activity being undertaken by businesses is the Statistical Classification of Products by Activity (CPA).

### Statistical Classification of Products by Activity, Version 2.1

CPA constitutes a comprehensive classification of goods and services, presenting categories for all products that can be the object of domestic or international transactions or that can be entered into stocks. It includes products that are an output of economic activity, including transportable goods, non-transportable goods and services.

CPA 2.1 is legally binding in the European Union and is structured according to the criterion of economic origin, with the framework (and the definition of the economic activities) being based on and corresponding to NACE Rev. 2.

### Structure of CPA 2.1

Level 1: 21 sections identified by an alphabetical code (A to U)

Level 2: 88 divisions identified by a two-digit numerical code

Level 3: 262 groups identified by a three-digit numerical code

Level 4: 576 classes identified by a four-digit numerical code

Level 5: 1,357 categories identified by a five-digit numerical codes

Level 6: 3,218 sub-categories identified by a six-digit numerical code

### Use of CPA

CPA, as a product classification, serves as an instrument for assembling and tabulating all kinds of statistics requiring product detail. Such statistics may cover production, intermediate and final consumption, capital formation, foreign trade or prices. They may refer to commodity flows, stocks or balances and may be compiled in the context of input-output tables, balance of payments and other analytical presentations. The CPA classifies products based on the physical characteristics of goods or on the nature of the services rendered.

CPA was developed primarily to enhance harmonization among various fields of economic and related statistics and to strengthen the role of national accounts as an instrument for the coordination of economic statistics. It provides a basis for recompiling basic statistics from their original classifications into a standard classification for analytical use.<sup>15</sup> CPA has

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<sup>14</sup> A list of the international and allied classifications used by ONS can be found on the [ONS Classifications webpage](#).

<sup>15</sup> CPA has direct links to: NACE Rev. 2: agreement at four-digit level (classes); International Standard Industrial Classification of All Economic Activities, Fourth Revision (ISIC Rev. 4); Central Product Classification, Version (CPC Ver. 2): the CPA is the European version of the CPC, the former classification being more detailed in order to meet the specific needs of the European Union; PRODCOM : agreement at six-digit level (PRODCOM has an additional level identified by an eight-digit numerical code); Harmonized System (HS); Combined Nomenclature (CN).



direct links to other classification systems. Figure 6 provides an example of how the CPA links to SIC.

**Figure 6: Example of link between SIC, CPA and Prodcum product codes**

- Division: 10 – Manufacture of food products
  - Industry code: 10.83 – Processing of tea and coffee
    - Product aggregate code: 10.83.11 – Coffee, decaffeinated or roasted
      - Product code: 10.83.11.30 – Decaffeinated coffee, not roasted
      - Product code: 10.83.11.50 – Roasted coffee not decaffeinated
      - Product code: 10.83.11.70 – Roasted decaffeinated coffee

The main statistical applications for CPA are: National and regional accounts; input-output analysis; other analyses requiring product data. It is helpful as businesses classified to one industry may produce, sell or trade products that are linked to a range of different industries.



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